WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a cDNA sequence encoding a mammalian CaMK-X1 protein that will hybridize under stringent conditions of 50°C or higher in the presence of 0.1XSSC to the sequence set forth in SEQ ID NO:1.

2. An isolated nucleic acid according to Claim 1, wherein said cDNA sequence is of human origin.

3. An isolated nucleic acid molecule according to Claim 2, wherein said mammalian CaMK-X1 protein comprises the sequence set forth in SEQ ID NO:2.

4. An isolated nucleic acid molecule according to Claim 3, wherein said nucleic acid comprises the nucleotide sequence of SEQ ID NO:1.

5. An isolated nucleic acid molecule consisting essentially of a sequence of at least 500 contiguous nucleotides of the sequence set forth in SEQ ID NO:1.

6. The nucleic acid of Claim 1, further comprising a vector sequence.

7. The nucleic acid of Claim 6, wherein said vector comprises a transcription cassette operably linked to said CaMK-X1 cDNA sequence.

8. The nucleic acid of Claim 7, wherein said vector is a plasmid.

9. The nucleic acid of Claim 7, wherein said vector is a retrovirus.

10. The nucleic acid of Claim 7, wherein said vector is an adenovirus.

11. A purified polypeptide composition comprising at least 50 weight % of the protein present as a CaMK-X1 protein or a fragment thereof.

12. A polypeptide according to Claim 11, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:2.

13. A monoclonal antibody binding specifically to a CaMK-X1 protein.

14. A non-human transgenic animal model for CaMK-X1 gene function wherein said transgenic animal comprises an introduced alteration in an CaMK-X1 gene.

15. A method of screening for biologically active agents that modulate CaMK-X1 function, the method comprising:

combining a candidate biologically active agent with any one of:

(a) a mammalian CaMK-X1 polypeptide;

(b) a cell comprising a nucleic acid encoding a mammalian CaMK-X1 polypeptide; or

(c) a non-human transgenic animal model for CaMK-X1 gene function comprising one of: (i) a knockout of an CaMK-X1 gene; (ii) an exogenous and stably transmitted mammalian CaMK-X1 gene sequence; and

determining the effect of said agent on CaMK-X1 function.